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CONTENTS

	PAGE
JORDAN, Dr. Karl, F.R.S., F.R.E.S. On the Oriental Anthribid genus *Xenocerus* Germar 1833, with descriptions of new species and subspecies (Coleoptera)	10–20
MACFIE, Dr. J. W. S. A new species of *Apelma* (Diptera, CERATOPOGONIDAE) from Fiji .	1–2, 1 fig.
MARSHALL, Sir Guy A. K., K.C.M.G., F.R.S. On *Trephognathus*: a new genus of African BARIDINAE (Col. Curc.)	21–24
ZAKHVATKIN, A. A., D.Sc. A *Chunra*-like Bythoscopid (Homoptera) from East Siberia .	2–5, 3 figs.
ZAKHVATKIN, A. A., D.Sc. On some European species of *Selenocephalus* (Homoptera, JASSIDAE)	6–9, 13 figs.

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PROCEEDINGS OF THE
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SERIES B. TAXONOMY

VOLUME 14. 1945.

A NEW SPECIES OF *APELMA* (DIPTERA, CERATOPOGONIDAE) FROM FIJI

By Dr. J. W. S. MACFIE.

Apelma fijiensis sp. n.

A dark brown species apparently resembling *A. keilini* Saund. but darker, and differing also in the forms of the harpes and aedeagus.

Male. Length of wing about 1·2 mm.

Head dark brown, with a small pubescent lobe projecting in middle line between eyes and bases of antennae. Eyes bare, narrowly separated above. Palpi dark brown, very short, lengths of last three segments 9, 6, and 4–5 units [1] respectively, the third only slightly longer than broad, with a small but rather deep pit, the fifth tapering distally, almost conical. Antennae darkish brown, denuded of hairs in the unique specimen: segments 4–11 ranging from 11 by 11 (maximum) to 11–12 by 6–7 (maximum) units; 12 elongate, about 24 units; others missing.

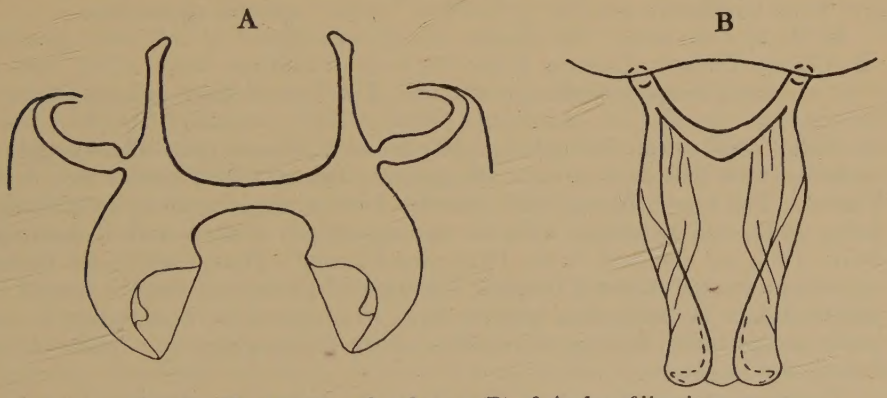


FIG. 1.—Harpes (A) and aedeagus (B) of *Apelma fijiensis* sp. n.

Thorax blackish, with pale brown sides and shoulder areas; dorsum adorned with the usual broad antero-posterior bands. Scutellum pale brown, bearing numerous bristles and hairs. Post-scutellum blackish.

Wings similar to those of *A. edwardsi*. Halteres with whitish knobs.

Legs almost uniformly pale brown. T.R. about 3. Claws as in *A. edwardsi*.

[1] The unit referred to is approximately 3·7 μ.

Abdomen very dark brown above, paler ventrally, and with sides pale brown. Hypopygium dark brown, generally similar to that of *A. keilini* but with harpes and aedeagus shaped differently. Ninth segment dark brown : tergite broad at posterior end, with quite inconspicuous lateral processes; sternite slightly excavated in middle line. Side-pieces and claspers as in *A. keilini*. Harpes (fig. A) H-shaped, with posterior limbs greatly expanded and folded on the inner side so that the tip is turned ventrally. Aedeagus (fig. B) well chitinised at base, forming an arch over ninth sternite and with strong root-like processes; ventral wall membranous and obliquely striated, distal portion well chitinised on each side and produced as a process which is directed dorsally.

Fiji : Korobaba, 21.vii.1943, 1 ♂, " Pandanus axil " (*R. A. Lever*).
Type in British Museum (N.H.).

A *CHUNRA*-LIKE BYTHOSCOPID (HOMOPTERA) FROM EAST SIBERIA

By A. A. Zakhvatkin, D.Sc.

(Zoological Institute, University of Moscow, USSR.)

Among the Idiocerinae there is a very distinct group of species, centring about the genus *Chunra* Distant (1907) and apparently confined to the Oriental Region. This *Chunra* Group is characterised by an exaggerated development of the scutum, which is much longer than the pronotum and vertex together and strongly tumidly elevated; by the frontal sutures being equally conspicuous throughout their length and reaching the ocelli; by the steeply tectiform tegmina; and by many other peculiarities which, taken together, give to its members a peculiar, somewhat " ipoid " general appearance.

So far as I am aware, the *Chunra* Group is composed of only three genera, viz. *Chunra* Distant, *Ipocerus* Baker 1915 and *Iposcopus* Baker 1915, with a total of only five species hitherto known. The first of these genera, *Chunra*, includes two species,[1] *Ch. puncticosta* (Walker 1869), originally described from the Malay Archipelago, but subsequently found in Tenasserim—which suggests its rather wide distribution—and *Ch. gigantea* Distant 1908, known only from Borneo. The two other genera, *Ipocerus* with a single species, *I. kirkaldyi* Baker 1915, and *Iposcopus* with its two species, *I. distanti* and *I. breviceps* Baker 1915, are confined to the Philippine Islands. Thus, the *Chunra* Group appears to consist of purely tropical insects, and as none of these is known to penetrate into the temperate zone, or even to approach its boundaries, it was quite unexpected to find representatives of the group within the limits of the Palaearctic Region.

Studying, some years ago, the immense collections preserved in the Zoological Museum of the Academy of Sciences of USSR, I happened to find two specimens of a very large and beautiful *Chunra*-like Bythoscopid caught in Eastern Siberia and resembling in general appearance and in its extraordinarily large size the Bornean *Ch. gigantea*. A careful examination showed

[1] I cannot agree with Prof. Baker's wide interpretation of this genus, and consider *niveosparsus* and its nearest allies are not congeneric with *Ch. puncticosta*, the type species of Distant's genus. In my opinion, these species form a separate genus, intermediate between the *Chunra* Group, as here defined, and the typical Idiocerinae.

them, however, to approach even nearer to *Ipocerus* than the genuine *Chunra* and to represent a hitherto undescribed genus and species, which I propose to name *Megipocerus mordvilkoi* gen. n. sp. n. in memory of the great Russian aphidologist A. K. Mordvilko, who actually discovered one of the specimens described below.

Megipocerus gen. n.

Closely allied to *Ipocerus*.—Head practically as wide as pronotum, in dorsal view nearly as long in the middle as next the eyes and more than four times shorter than pronotum; finely shagreened, without any traces of cross striation. Ocelli placed at the level of the eye's centre, the distance between them being one and a half that from ocellus to the eye. Lateral edges of fronto-clypeus strongly arcuate, anteclypeal suture distinct; antennal pits comparatively deep, supra-antennal ledges evenly curved, without producing a lobe next fronto-clypeus.

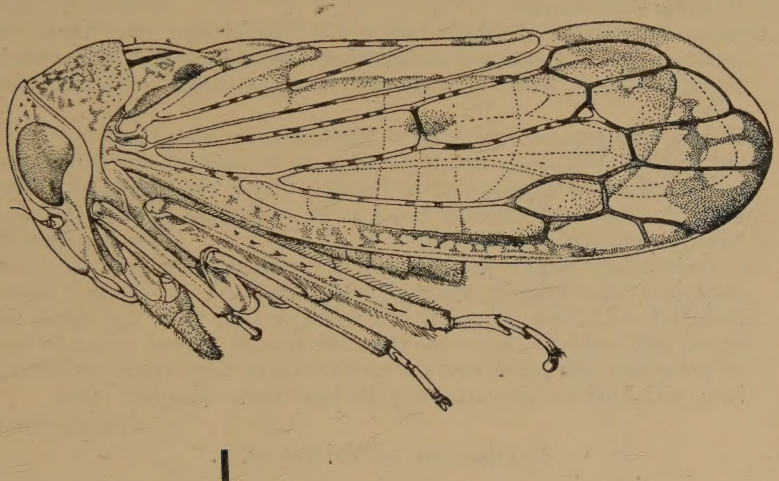


Fig. 1.—*Megipocerus mordvilkoi* gen. et sp. n. Female, lateral view.

Pronotum distinctly humped posteriorly, two and two-thirds (♂) to nearly three times (♀) as broad as long, finely shagreened and, moreover, sparsely but very obviously punctate; its hind margin rather slightly incurved. Scutum enormously developed, nearly twice as long as pronotum and vertex together, strongly tumidly elevated, with the scutellar suture represented by two separate oblique grooves.

Tegmina steeply tectiform, of a peculiar "chunroid" configuration, *i.e.* somewhat broadened posteriorly and with claval angle rounded and noticeably shifted distally, corresponding to the exaggerated development of the scutum; with shining, almost transparent membrane and strong, very conspicuous venation similar to that of *Ipocerus* but with the *r–m* cross vein absent; consequently, with only two separated subapical cells and the second discoidal cell unusually large; first subapical cell much smaller than the third, first apical decidedly narrower than the fourth; costa strongly enlarged and thickened, conspicuously punctate in its basal half.

Type of the genus, *Megipocerus mordvilkoi* sp. n.

As has already been mentioned, this new genus seems to be closely allied both to *Ipocerus* and to the true *Chunra* (sensu Distant), but is easily distin-

guishable from them, as well as from all other members of the *Chunra* Group, by the characters summarised in the following key :—

1(2). Venation of tegmina indistinct proximad of apical cross veins; first apical cross vein (*r–rs*) and the medio-cubital one (*m–cu*) absent, which results in the tegmina having but one closed subapical cell (the second) and the first apical cell (or, to be more exact, the complex cell, resulting from the fusion of the latter with the first subapical cell) being much larger than all the other tegmen cells. Supra-antennal ledges strongly sinuate, producing a distinct lobe next fronto-clypeus.
Iposcopus Baker 1916.

2(1). Venation of tegmina equally strong throughout their length, or nearly so; first apical and medio-cubital cross veins present, tegmina with at least two closed subapical cells.

3(4). Ocelli about as near to each other as to eyes. Pronotum twice as long as vertex. Tegmina with three subapical and only four apical cells, R_1 being undeveloped . . . . . *Chunra* Distant 1907.

4(3). Distance between ocelli about one and a half greater than that from ocellus to eye. Pronotum no less than three times as long as vertex. Tegmina with R_1 well developed and, correspondingly, with five apical cells.

5(6). *r–m* cross vein present, which gives tegmina three closed subapical cells, the first of them being nearly as large as the second and third; first apical cell about same width as fourth. Head wider than pronotum, the latter two and one half times as broad as long, with hind margin strongly incurved. Size small . . . . . *Ipocerus* Baker 1916.

6(5). *r–m* cross vein absent; tegmina correspondingly with but two closed subapical cells (namely, the first and third) and an enlarged second discoidal cell; first subapical cell much smaller than the third, first apical cell decidedly narrower than the fourth. Head about as wide as pronotum, the latter two and two-thirds to three times as broad as long, with hind margin rather slightly incurved. Size very large
Megipocerus gen. n.

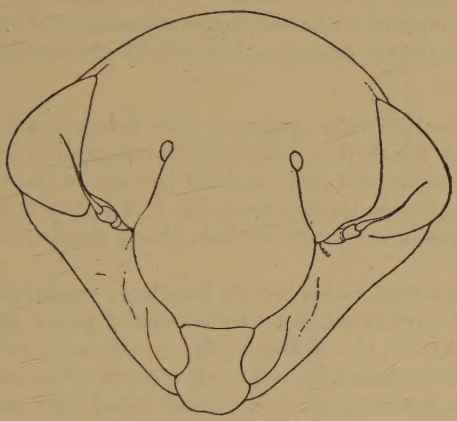
Megipocerus mordvilkoi sp. n.

Size, very great for the group, closely approaching that of its largest member as yet known, *Chunra gigantea* Dist. General shape apparently similar to that of the last-named species, as can be ascertained from a comparison with Distant's original figure (1908, *Rec. Ind. Mus.* **2** : pl. VII, fig. 11, 11a), *i.e.* decidedly more slender than in the small, normal-sized species of the group, e.g. *Ch. puncticosta* or *Ipocerus kirkaldyi* Bak.; total length 2·80 (♀) to 2·83 (♂) times width across eyes.[2] Length of vertex into width between eyes about eight times, face nearly as broad as long (ratio 80 : 73), as well as the fronto-clypeus, if its length is measured from the level of the ocelli to the anteclypeal suture; anteclypeus scarcely longer than broad, strongly widened subapically, with deeply emarginate lateral sutures and apical margin nearly semicircular in general outline, although faintly sinuate in its middle part. Tegmina some two and two-thirds as long as wide in middle. Hind tibiae armed exteriorly with a row of spines that gradually decrease in size from the apex of the tibia to the base; their upper and lower external edges thickly set with soft whitish bristles.

General colour pale ochraceous, in the female even paler than in the male, with head, pronotum and scutum reticulately mottled with brownish. On the vertex and the upper part of the face, the vermiculate elements composing this ornamentation are rather scarce

[2] In the female of *Ch. gigantea* figured by Distant, the respective index (L/W ratio) seems to be 2·75, while in the male of *Ch. puncticosta* (as measured on the figure of this species in *Fauna of Brit. India* **4**) it is equal to 2·4–2·5, and in *Ipocerus kirkaldyi* measures about 2·4 (according to the dimensions given in Baker's description).

and uniformly distributed, while on the pronotum they condense into two quite conspicuous lateral stripes and a still broader, though far more obsolete median spot; on a large median area along the scutum this dark reticulation becomes even denser and deeper in tone and, spreading over the ochreous base colour, makes the latter appear only as a number of light dots against a dark-brown ground; the remainder of the scutum pale ochraceous, with a large V-shaped sepia brown figure on each side near its base and a crescent-shaped brown spot at the middle of the lateral edge. Tegmina light golden brown, almost hyaline, with a deep sepia brown stripe along the inner margin of costa, a spot at the medio-cubital cross vein and a beautiful pattern on the membrane, dark chestnut brown (the latter gradually shading distad to nearly piceous). Venation on corium and clavus whitish with numerous short fuscous interruptions of various lengths, on membrane mainly fuscous with a few pale interruptions; costal plate ochraceous, spotted with brown. Underside and legs of a somewhat deeper ochreous tint than head, pronotum and scutum; femora with rather indistinct brownish stripes and a dark lateral spot near the apex; upper surface of the hind tibiae distinctly infuscate, especially along their external edge, apex of tarsi and claws dark brown. Dorsum and connexivum brownish variegated with ochreous, venter in the female pallid with a large dark spot on the subgenital plate.



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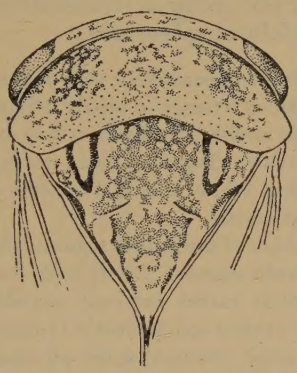

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FIG. 2.—*Megipocerus mordvilkoi* gen. et sp. n. Male: face in a frontal view.

FIG. 3.—*Megipocerus mordvilkoi* gen. et sp. n. Female, dorsal view of the fore part of body.

♂. Genital segment very short, consisting of several heavily sclerotised pieces connected by a thin colourless membrane. Genital plates long and flat, coarsely haired along their external edge. Styli divided apically into three short branches. Aedeagus short and simple.

♀. Subgenital plate with the hind margin rather deeply emarginate in the middle, leaving thus two bluntly rounded submedian lobes.

Measurements. ♂ (holotype): Total length 7·14; width across eyes 2·52; length of vertex about 0·19; interocular width 1·62; length of pronotum 0·88; width 2·37; length of tegmina 5·95; width 2·24 mm. ♀ (allotype). Total length 8·00; width across eyes 2·86; length of vertex 0·23; interocular width 1·90; length of pronotum 0·98, width 2·86; length of tegmina 6·71; width 2·52; exp. tegm. about 16·25 mm.

Holotype.—♂; vicinity of the railway station Fanza, Sutshan district, Ussuri Province. July 18, 1926 (*A. K. Mordvilko*).

Allotype.—♀; Vassiukevitch's Farm, Geck Creek, Amur Bay. August 3 (16), 1910 (*Czerski & Behringer*).

Both types are in the collection of the Zoological Museum of the Academy of Sciences of the USSR.

ON SOME EUROPEAN SPECIES OF *SELENOCEPHALUS* (HOMOPTERA, JASSIDAE)

By A. A. Zakhvatkin, D.Sc.

(*Zoological Institute, University of Moscow, USSR.*)

The study of fairly extensive material of *Selenocephalus griseus* from Italy and South-Eastern Europe clearly shows that several quite distinct species have hitherto been confused under this specific name. Their differentiation, which may prove of some zoogeographical interest, is the aim of the present communication.

Selenocephalus griseus (Fabricius, 1794).

As the original description by Fabricius was founded on specimens sent to him from Italy by Allioni, it seems correct to consider the commonest Italian form of this group as representing the true *S. griseus*. It is chiefly characterised by the following features :—

Stature comparatively very robust, the L/W ratio ranging in male from about 2·5 to 2·62, with an average of nearly 2·59 and in female from 2·65 to 2·72 (average about 2·68). Vertex at middle about half as long as pronotum and equal to 28–31 per cent. of the interocular width. Tegminal index nearly identical in the two sexes, viz. 2·72 to 2·78 in male and 2·70 to 2·80 in female. General coloration comparatively dark, almost similar in both male and female.

♂. Lobes of the genital segment (fig. 1) robust, rather broadly lamellate; ventral spines of the tenth segment (fig. 2) hook-shaped, very broad, distinctly lamellate; genital plates with apices rather narrowly rounded (fig. 13, a); aedeagus (fig. 3) extremely robust, strongly swollen and distinctly U-shaped in its basal half, and nearly straight in the apical; with a single (median) spine proximal to gonopore and paired distal spines (only one of these two shown in figure, the other being behind the aedeagus) implanted close to the posterior outline of this organ.

The dimensions are given in the table (p. 9) together with those of other forms here discussed.

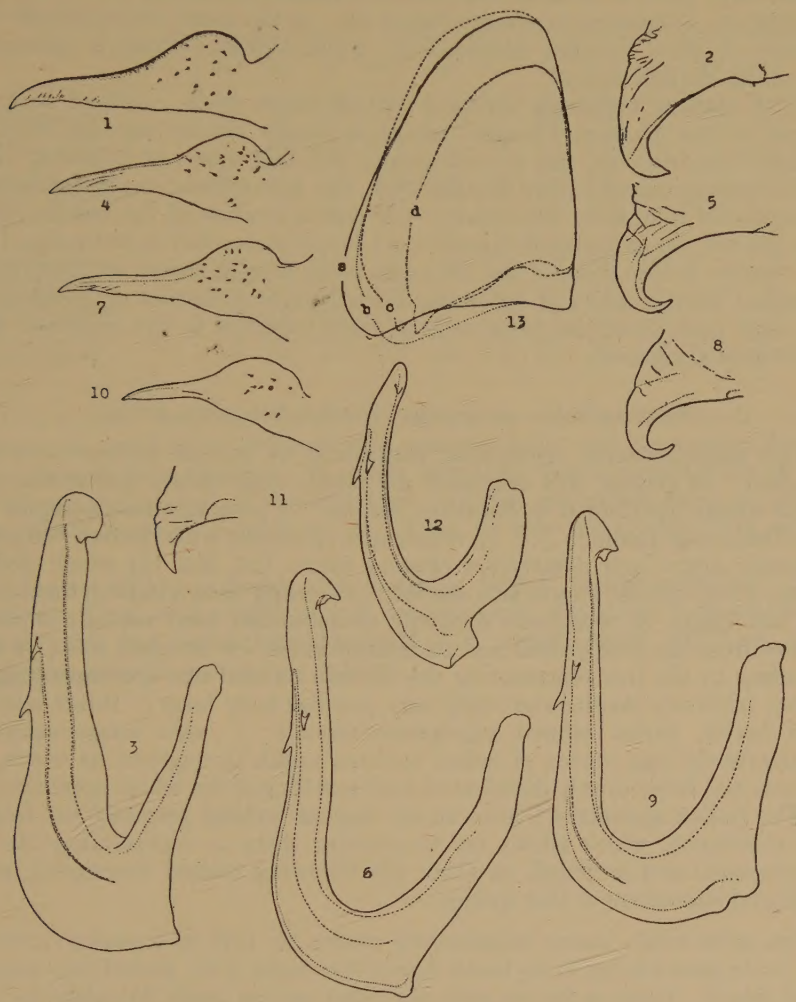
S. griseus, as defined above, is known to me only from Northern and Central Italy, being presumably confined to the Western (Tyrrhenian) part of the group's area. In South-Eastern Europe it is replaced by the following species :—

Selenocephalus rossicus sp. n.

Even larger than *griseus* and distinctly more elongate, with the L/W ratio of male varying from 2·64 to 2·90 with an average of 2·77, and that of female from 2·8 to nearly 3·0, average 2·9. Proportions of vertex approaching those of *griseus*; tegmina decidedly longer, reaching farther beyond tip of abdomen in the two sexes, their index being 2·88 to 3·07 (average 2·97) in male and 2·78 to 3·14 (average 3·08) in female. General coloration noticeably more variable than in *griseus*, especially in the female.

♂. Lobes of the genital segment comparatively thin and narrow, scarcely if at all lamellate (figs. 4, 7); ventral spines of the tenth segment more slender and even more sharply curved than in *griseus*, not lamellate (figs. 5, 8); aedeagus very slender, while

similar in general structure to that of *griseus*; strongly arched at base and practically straight in its distal half and similarly armed with three spines, the distal of which arises distinctly more lateral than in *griseus* (figs. 6, 9).



FIGS. 1–13.—1, Lobe of genital segment, 2, spine of tenth segment, and 3, aedeagus of *Selenocephalus griseus* (F.) ♂; 4, 5 and 6, the same of *Selenocephalus rossicus rossicus* A.Z. ♂; 7, 8 and 9, the same of *S. rossicus tesquicola* A.Z. ♂; 10, 11 and 12, the same of *Selenocephalus conspersus* (H.-S.) ♂; 13, outlines of the genital plates of (a) *S. griseus*, (b) *S. r. rossicus*, (c) *S. r. tesquicola*, and (d) *S. conspersus*.

This species is widely distributed in the southern parts of the USSR, including Ukraine, Crimea and Northern Caucasus, and is known to occur in Bulgaria as well. It apparently splits into two distinct subspecies, viz. :—

(1) *S. rossicus rossicus*, which is the most widely spread of the two, and which seems to be differentiated into a number of more strictly localised geographical sub-races. As a whole, it is characterised by its somewhat larger size

(see measurements in table, p. 9), by the darker coloration of the female, by the male genital plates quite similar in outline to those of *griseus* (fig. 13, b) and, even more distinctly, by the aedeagus definitely U-shaped at base (fig. 6). In the northern parts of its area, this form is confined to most arid stony habitats, especially to cretaceous exposures, being one of the most characteristic components of their peculiar biocoenosis. Type locality—Prishyb (district of Slavyansk, Stalino region).

(2) **S. rossicus tesquicola** subsp. n., which seems to be confined to grassy steppes of the Eastern Ukraine, where it locally occurs together with the nominal form *rossicus*, but in ecologically different types of habitats. It is, on the average, appreciably smaller than the latter form, being furthermore distinguished from it by the usually very pale coloration of the female, by the male genital plates being obviously more broadly rounded apically (fig. 13, c) and, finally, by the stem of the aedeagus being simply arched at base (fig. 9). Described from a series of specimens from Nyrkovo, district of Lissitshansk, and some more examples from various other localities in the region of Voroshilovograd (Lugansk).

Selenocephalus conspersus (Herrich-Schaeffer, 1835).

This salient species, erroneously considered by modern authors as a mere " variety " of *griseus*, was originally described from Vienna and seems to be rather widely distributed in Southern Europe. I possess some examples of it from Ostia near Rome (3 ♂, 2 ♀), which agree perfectly with Herrich-Schaeffer's authentic figure and description (*Fauna Germ.* 124, No. 12) which give, of course, a very precise idea of this species. As clearly shown in both the description and figure, *S. conspersus* is chiefly characterised (and actually separable at once from the true *griseus* and its nearest allies) by its small size (7·4 mm., according to the line representing the insect's natural size accompanying the figure), relatively slender and really very peculiar body form (" Durch seine am Kopf breite, hinten schmal zugespitzte Gestalt . . . sehr ausgezeichnet "), comparatively long vertex of rather uniform length throughout its width, and a coarse and fairly evenly distributed dark mottling of the whole upperside, etc.

The Italian specimens I have at my disposal exhibit precisely the features just mentioned, which allows me to consider them as representing the true *S. conspersus* and to found on them the following revised description of the structural characters of this species :—

Size, rather small; stature comparatively slender, the L/W ratio ranging in the male from 2·8 to about 2·9, and in the female from 2·73 to nearly 2·80; general form somewhat wedge-shaped. Vertex in the two sexes of a rather uniform length throughout its width, medially equal to 55–65 per cent. of the pronotum length. Tegmina more elongate than in other members of the *griseus* group, 3·04 to 3·23 as long as broad, extending far beyond tip of abdomen both in the male and female sexes.

♂. Lobes of the genital segment of the same general form as in *rossicus*, but with the apical process much shorter, which augments its likeness to the outline of a bird's head (fig. 10); with only few microchaetae on the external surface of their basal part. Ventral spines of the tenth segment small, straight, similar to those of *S. uvarovi* A.Z. 1944, but somewhat shorter (fig. 11). Genital plates (fig. 13, d) practically as in *rossicus tesquicola*, i.e. with the apices broadly rounded. Aedeagus (fig. 12) slender, evenly arched throughout its length, with two pairs of spines (only one of each pair shown in the figure), of which the upper are implanted rather close to those of the lower (proximal) pair and quite laterally.

Subgenital plate showing no appreciable differences from those of *griseus* and *rossicus*,

with the submarginal transverse dark line extending sideways nearly to lateral angles of the plate.

Table of Measurements.

	griseus (Northern Italy)			*rossicus rossicus* (Typical series)			*rossicus tesquicola* (Typical series)			*conspersus* (Ostia near Rome)		
	Min.	Max.	M.	Min.	Max.	M.	Min.	Max.	M.	Min.	Max.	M.
Total length ♂	6·82	7·61	7·07	7·08	7·79	7·38	7·13	7·22	7·20	6·29	6·68	6·54
Width across eyes	2·60	2·90	2·71	2·64	2·77	2·70	2·55	2·68	2·60	2·24	2·38	2·32
Length of vertex	0·53	0·57	0·55	0·44	0·53	0·49	0·48	0·53	0·50	0·46	0·52	0·49
Interocular width	1·76	1·85	1·80	1·76	1·89	1·83	1·72	1·80	1·76	1·50	1·67	1·60
Length of pronotum	1·06	1·18	1·10	1·10	1·19	1·15	1·06	1·11	1·07	0·79	0·88	0·84
Width of pronotum	2·60	2·90	2·72	2·51	2·68	2·65	2·46	2·60	2·52	2·16	2·29	2·27
Length of tegmina	5·46	6·03	5·65	5·85	6·25	6·08	5·68	6·03	5·83	5·15	5·37	5·26
Width of tegmina	1·98	2·16	2·05	2·02	2·09	2·04	1·85	2·02	1·95	1·67	1·71	1·70
Total length ♀	7·70	8·18	7·92	8·45	9·00	8·73	8·05	8·58	8·25	7·34	7·39	7·36
Width across eyes	2·90	2·99	2·95	2·90	3·04	2·99	2·82	2·95	2·88	2·64	2·70	2·67
Length of vertex	0·57	0·59	0·58	0·53	0·59	0·55	0·53	0·59	0·56	0·53	0·57	0·55
Interocular width	1·94	2·07	1·99	1·95	2·07	2·04	1·94	2·07	2·00	1·76	1·78	1·77
Length of pronotum	1·19	1·28	1·24	1·19	1·28	1·24	1·19	1·23	1·21	0·97	1·01	0·99
Width of pronotum	2·92	2·99	2·97	2·86	2·99	2·93	2·77	2·90	2·84	2·42	2·47	2·44
Length of tegmina	6·29	6·69	6·42	7·04	7·48	7·16	6·60	6·91	6·70	5·94	5·98	5·96
Width of tegmina	2·26	2·46	2·35	2·26	2·46	2·33	2·14	2·26	2·19	1·85	1·94	1·89

It is evident from the foregoing descriptions that the Palaearctic *Selenocephalus* are much more differentiated systematically and geographically than has previously been thought. It shows, moreover, that a careful study of their genital equipment and of some of their external characters (such as general proportions, size and coloration) will bring to light much new data on this subject.

It seems highly probable, for instance, that *S. lusitanicus* (Fieb.) Sign., *S. pallidus* Kbm., and possibly also *S. corsicus* Leth. may prove to be specifically distinct from the forms here discussed and, consequently, will have to be restored as separate taxonomic entities.

ON THE ORIENTAL ANTHRIBID GENUS *XENOCERUS* GERMAR 1833, WITH DESCRIPTIONS OF NEW SPECIES AND SUBSPECIES (COLEOPTERA)

By Dr. Karl Jordan, F.R.S., F.R.E.S.

The species of *Xenocerus* are among the most conspicuous Anthribids on account of their colouring and size and the great length of the antennae of large males, in which they surpass even the Cerambycidae. The genus is restricted to the Tropics of the Oriental Region, occurring from Ceylon to the Solomon Islands and being most abundantly represented in Malaysia and the Philippines. More than 5 per cent. of the total number of species and subspecies of Anthribidae described belong to this genus. After the removal of nine species into separate, though closely related, genera, there are now in *Xenocerus* some 130 published species and subspecies (inclusive of the 19 described in the present paper), over 120 being represented in the British Museum (N.H.). They are generally found on felled trees and may, therefore, be expected to occur wherever there are forests. As islands long separated from their neighbours have their own specific and subspecific populations of *Xenocerus*, it is certain that future explorations will add large numbers of new forms to the collections, no *Xenocerus* having been collected on many of the wooded islands of the Malay Archipelago and only a single specimen being known to science from Timor and Timor-Laut, for instance. Although it is comparatively easy sharply to diagnose a local population of *Xenocerus*, it is in many instances as yet impossible to decide whether to regard a particular geographical form as a species or a subspecies, sometimes the relationship with other forms being very obvious because the differences are morphologically slight, sometimes the distinctions being so great in a localised population that the form has to be treated as a distinct species. The taxonomy of *Xenocerus* is rendered difficult by the fact that the genitalia of neither sex offer any specific distinguishing characters. A variety of species have been examined, and the sclerites of the phallosome and the membranes of the phallus, as well as the tergum and sternum of segment VIII have been found alike in all males; the same negative result was obtained in comparing segment VIII and the ovipositor of the various females. There are other genera of Anthribidae in which the genitalia are uniform, whereas in others again they vary from species to species. Differences in externals, therefore, are our only evidence on which to base an estimate of the degree of relationship in *Xenocerus*. In consequence uncertainty now and again is inevitable until the discovery of at least the majority of the unknown Xenoceri, which doubtless exist, will have supplied a more adequate basis for taxonomic deductions.

Meanwhile, the material in the collection enables us to go on with the pursuit of two objectives: (*a*) to obtain further information by studying the beetles and (*b*) to arrange the species and subspecies as correctly according to affinity as possible. Both objectives are closely interwoven, depending on the same individuals and aggregates of individuals.

The individual supplies the knowledge of morphology. The lowest aggregate to study for the acquirement of knowledge in relationship should be the offspring

of one pair. As that is only possible in breeding experiments, taxonomy has to be satisfied with the next aggregate, the localised population, which, as known from observations, is an interbreeding community, morphologically and physiologically separated from all other interbreeding communities of the same locality. If only one population of a certain kind is known, it is treated as a species; if the same kind, but with a difference, becomes known from another locality, both populations are treated as subspecies, and the two together as a species. In regions like the Malay Archipelago, with a great number of diverse localities, the number of subspecies composing a species may run into dozens. The study of subspecies is fundamental for taxonomy as well as the theory of descent. If taxonomy has supplied the knowledge that subspecies A and B are closely related, perhaps their somatic differences intergrading or overlapping, and if the geological history proves locality B to be younger than A, we may have convincing evidence that subspecies B is derived from A. It has sometimes quite rightly been said, by propagandists as well as scientists, that we have no proof that a new species has been produced by evolution, the palaeontological records being incomplete and therefore inconclusive, a complete intergrading series from an older to a younger species being required. Taxonomy of recent animals cannot supply the time factor involved in the " proof "; but the intergrading series from one extreme to another is no rarity in chains of subspecies. The origin of a subspecies, *i.e.* of a local population distinguished in some way from the same kind of population of another locality, appears to me ascertainable.

It is evident from the preceding lines that I consider intergrading subspecies of *Xenocerus* to be of great interest. There are several examples among the subspecies described in this paper. I mention here the various local populations of *X. corae* Gestro 1875 because they illustrate incidentally the importance of the geographical factor in taxonomy. *X. corae corae* is a very variable population, of which we have 40 specimens; its known area is the Arfak Peninsula, Southern Dutch N. Guinea and the Aru Is. The *corae*-population of Waigeu is represented in the collection by only two females, which are different from *X. corae corae*; the extent of the variability is not known. The third subspecies (6 specimens in British Museum), from the Fly R. in Western Papua (formerly British N. Guinea), is as sharply distinguished by its marking as if it represented a separate species. And the fourth subspecies (18 specimens) inhabits Eastern Papua south of the Owen Stanley Range and intergrades with *X. corae corae*. The area covered by the four subspecies does not include the Northern district of the island from Humboldt Bay to Astrolabe Bay. Here occurs *X. conjunctus* Jord. 1895, which is similar to *X. corae* in pattern and in the long female antenna, but differs in the male antenna having a brush of long hair on segment V, which is not present in any of the males of *X. corae*. The female, and a male with the antennae missing, can be recognised as *X. conjunctus* by each elytrum bearing at the apex a longish white line parallel with the margin instead of the short spot of *X. corae*. The great similarity of the two species and the fact that *X. corae* is not known to occur in the area where *X. conjunctus* (16 specimens in British Museum) has been obtained suggest that the antennal brush is here not of fundamental taxonomic importance. I should not be surprised if on further research it became clear that there are pairs of species, one with and the other without antennal brush, which are so closely related that it would be wrong to place them into separate groups of the genus. At the same time, *X. corae* and *X. conjunctus* demonstrate that such " insignificant " distinctions as a subapical line and a subapical spot can be indications of specific distinctness of their possessors.

The division of the genus into five groups of species according to the antennae of medium and large males is provisional. It is convenient as regards the males, but inconvenient if only females of a species are available. Group-definitions applying to both sexes could only be given if the genus were divided into a large number of groups, which also would be inconvenient.

Groups C and D may possibly have to be united as suggested above.

A. Cylindricollis Group. Male antenna: segment III at least twice as long as broad, usually three or four times, no long hairs on any segment, in medium and large males X longer than IX, VIII to X being much longer than in groups C to F.

B. Barbicornis Group. Male antenna: segment III short, II to IV with fringe of hairs on inner side, V-curved, with long brush on concave side (except in small males), in medium and large males X longer than IX, VIII to X very long, as in A.

C. Variabilis Group. Male antenna: III short, II hairy on outer or underside in several species, V with brush of long hairs (sometimes completely worn away; absent in small males), X always shorter than IX, much shorter than IX in large males. In female of several species III to V or VI hairy on inner side.

D. Anthriboides Group. Male antenna: segment III short, V without brush or tuft, X always longer than IX, no long hairs on any segment (in either sex).

E. Saperdoides Group. Antenna: in male II to IV or V and in female II to VI rough with hair, at least on inner side. III of male short, X always shorter than IX.

F. Fimbriatus Group. Antenna: II of male with apical tuft, V without brush, X always shorter than IX. In female no long hairs.

In these diagnoses the inner side is the one towards the body with the antenna directed backwards. The scrobe is so formed in *Xenocerus* that the antennae cannot be lifted up and back without breaking the connection with the thorax; they can easily be moved down and back.

It will be noticed that I have emphasised in the diagnoses of groups A and B the great length of segment X of the antenna in large males. It is a feature for which I cannot find an explanation. In all *Xenocerus* and the numerous other Anthribidae with long antennae, the length of the male antennae increases disproportionately with the increase of the size of the body. In very small males the antennae reach only a little beyond the elytra; in the largest males of *Xenocerus* they are over six times the combined length of pronotum and elytra in groups A and B; less than four times in groups C and D; and less than three times in groups E and F. Segment XI having increased comparatively little in large males, it is a puzzle why X is longer than IX in groups A and B; for in the other Anthribidae X is at most as long as IX in a small number of species and shorter than IX in all the rest, in some species X being quite short or having even disappeared as a separate segment.

The following tables give in millimetres the length of the body (pronotum plus elytra) and the last four segments of large, medium and small males of one species each of groups A, B, C, D and E.

X. buruanus Jord. 1898. Group A.

body	VIII	IX	X	XI
20	17	13	22	5·5
15	10	8·5	14	5·5
12	8·5	5·5	7	3
11	4·2	2·4	2·2	2·7
9	1·3	0·9	0·7	1·5

X. barbicornis Gestro 1875. Group B.

body	VIII	IX	X	XI
20	16	14	23	4
17	14	10·5	13	3·8
14	12	5	6	3
10	2	1·2	0·8	1·7

X. longicornis Jord. 1894. Group C.

body	VIII	IX	X	XI
18	5·8	5	2	4
13	5	5	1·5	4
11	3	2·2	1·2	3
9·5	1·4	1·2	0·7	2

X. corae Gestro 1875. Group D.

body	VIII	IX	X	XI
15	6	5	2	5·5
12	4·5	4	1·8	4·5
9	1·8	1·6	0·9	2
7·5	1	0·9	0·5	1·4

X. andamanensis Jord. 1894. Group E.

body	VIII	IX	X	XI
19	5	4·5	1·6	4
16	4	3·3	1·4	3
11	2	1·6	1·3	2·3
8	0·7	0·7	0·4	1

The increase in the length of the antennal segments is not proportionate to the size of the specimens, nor do the segments each increase in length in accordance with a mathematical formula. Nevertheless there is some kind of order in the variability. The actual difference in length between the respective segments of the smallest males of the five groups does not amount to much, but the increase in the large males of A and B is enormous as compared with the other groups. The large specimens of the species of A and B are the highest expression of the specificness of their kind. Nietzsche might have called them superbugs.

A. Cylindricollis Group.

Xenocerus semiluctuosus anandrus subsp. n.

Moluccas: Oeliassers, Saparoea, i.1892 (exped. *Martin*), two males.

Both specimens small, length (of pronotum and elytra together) 10 and 12 mm., antenna twice and two and one-half times as long. In colour similar to the female of *X. s. semiluctuosus* Blanch. 1853, from Amboina and Ceram, not to the male of that dimorphic *Xenocerus*: a little more than the anterior half of the elytra white, except a black basal patch which extends from near the scutellum to the lateral margin and is 1½ mm. long, the sutural projection forward from the white area slightly tapering towards the white scutellum; within the white area a small black lateral spot, and anteriorly a line on interspace III penetrating from black basal patch to about middle of white area; posterior margin of this area with shallow sinus between punctate stripes IV and VII, from which extend two minute teeth forward. Segment X of antenna a little shorter than IX. Femora rufescent as in the typical subspecies.

Xenocerus divisus sp. n.

Celebes: Uru, Latimordjong Mts., 800 m., vii.–ix.1930 (*Gerd Heinrich*), one male.

Likewise similar in colouring to the female of *X. s. semiluctuosus*; distinguished from all the allied species in the exceptionally long third segment of the antenna. Black, inclusive of femora; pubescence of dark areas of upperside deep umber-brown. Head with the usual white stripes, triangular median stripe of occiput much narrower than white border of eye. Antenna 2½ times as long as pronotum and elytra together, segment III much longer than I of hind tarsus and more than one-half longer than in male of *X. semiluctuosus*, VI–VIII almost without tubercles, apical half of VIII, total IX and basal half of X white, IX as long as XI, longer than X. Pronotum rather strongly punctate in median area, with three complete white stripes, median one slightly the widest. Elytra more distinctly punctate-

striate than in *X. semiluctuosus*; basal three-fifths white from side to side, a round spot on subbasal swelling black, touching basal margin in interspace II, above shoulder a black linear spot which is widened sideward in front of shoulder-angle and reaches a little farther back than hind margin of round subbasal spot, laterally in white area two minute black dots, posterior margin of white area with a shallow rounded sinus on suture and another from punctate stripe V to outer margin, some minute teeth penetrating into the white area, the projection between the sinuses nearly rectangular on punctate stripe V. Pygidium white, with black triangular median stripe. Underside and legs white, but the pubescence not very dense, especially on the legs, apex of tibiae and of tarsal segments I, II and IV and entire segment III black, as is also the median area of the last abdominal sternum. Intercoxal process of mesosternum triangular, narrower than in *X. semiluctuosus*. Length (pronotum plus elytra) 12 mm.

Xenocerus fucatus sp. n.

New Guinea: Mafor, v.1875 (*Beccari*), one damaged large male.

The specimen is very probably the one mentioned by Gestro at the end of his description of *X. niveofasciatus* (1875, *Ann. Mus. Civ. Genova* **7**: 1016); for it bears a label with "*X. niveofasciatus* Gestro Typus" and has the dorsal humeral spot and the lateral posthumeral one united as described by Gestro. The female received from the same source, another Mafor female received from Fruhstorfer and two males and a female without precise locality agree with the description of *X. niveofasciatus*, whereas the male in question does not. Gestro overlooked the distinction in the male antenna which characterises all the species of the Cylindricollis Group: the comparatively long third segment, which is very little longer than apically broad in *X. niveofasciatus* and nearly four times as long as broad in the new species. Gestro, like so many continental taxonomists, regarded every specimen of the original series as being a type; they are cotypes and the actual type of *X. niveofasciatus* should be selected from among the specimens in the Genova Museum.

Near *X. humeralis* Gestro 1875, *loc. cit.*: 1014, in which segment III of the antenna is likewise long. Occiput with white median stripe which is posteriorly as broad as the border of the eye. Segments IV to VII of the antenna (the others missing) rough with numerous small tubercles. On pronotum three complete white vittae. On elytra a sutural stripe from base to transverse band, of even width, neither constricted nor interrupted; transverse band broader than in *X. niveofasciatus*, about $2\frac{1}{2}$ mm. wide, its anterior and posterior sides nearly at right angles with the suture, from band to apex a thin sutural line and another, more distinct, along outer margin, thin near band and slightly widening on nearing sutural angle; no connection of band with humeral patch; this patch extending from lateral margin to punctate line II behind black subbasal swelling, in fresh specimens probably more or less connected with the sutural vitta, its posterior margin irregularly dentate, tooth on interspace VI longest, reaching about half-way to transverse band; on shoulder-angle a black spot, much smaller than the patch on subbasal swelling, longer than broad. Pygidium white, with black median vitta which is slightly wider basally and apically than in middle. Underside white (partly denuded), without black spot at apex of episternum of metathorax and without black lateral spots on abdomen. Length 18 mm.

Xenocerus tenuatus sp. n.

South Celebes: Bua-Kraeng, 5000 ft., ii.1896 (*H. Fruhstorfer*), one male.

Belongs to the Cylindricollis Group, but segment III of antenna much compressed and little more than twice as long as its flat side is broad. Pubescence of upperside umber-

brown, markings greyish-white. Median vitta of occiput narrow. Antenna twice as long as pronotum and elytra combined, segments II to VI strongly compressed, VII to IX and two-thirds of X white, a rather conspicuous distinction, VIII one-third longer than X, IX and XI each a little longer than X. Pronotum with indications of dispersed shallow punctures; three vittae, the median one thin, lateral one more than twice as broad, crossing carina at rounded lateral angle, the brown area between the white vitta and the lateral carina narrowing to a point on the arc of the carina, but reappearing subventrally. Elytra rather more coarsely punctate-striate than usually; sutural vitta narrow, dividing at middle into the usual two branches, which are as thin and oblique as in *X. laevicollis* Jord. 1894 (in which antennal segment III is quite short), forming a very acute angle on suture and not reaching to lateral margin; at base above shoulder a short, slightly oblique line, from behind shoulder a submarginal line pointed in front, anteriorly covering for some distance interspaces VII and VIII and then continued as a thin streak along punctate stripe IX and fading away before reaching the transverse band; apical area without markings. Pygidium grey, with blackish median stripe. Underside white, with a buffish tint, middle of thorax blackish, on prosternum the white pubescence extended up to the lateral carina, the well-defined brown stripe usually present in allied species below the lateral carina here only distinct at apex and base and indicated in between by an ill-defined slight brownish wash along the carina. Legs black, with a thin grey pubescence which gives them a slaty tint. Length 11 mm.

Xenocerus speracerus rosseliensis subsp. n.

Louisiade Archipelago: Rossel I., 2100 ft., xi.1915–i.1916 (*F. W. Eichhorn*), two pairs.

Differs from *X. sp. speracerus* Montr. 1856, from Woodlark, whence we have a large series, in the transverse band of the elytra being little or not at all widened at the suture and less angulate on each elytrum, in the submarginal posthumeral white line not reaching to middle of elytrum and usually being interrupted, and in the apical area being devoid of a submarginal line. Length 12–16 mm.

Xenocerus equestris kaioanus subsp. n.

Northern Moluccas: Kaioa I. (near Batjan) (*A. R. Wallace*), three males, one female.

Upperside as deep brownish-black as in *X. buruanus* Jord. 1898. The three vittae of pronotum distinct and equal in thickness or nearly, about one-third as broad as the blackish interspace, the lateral vitta not more or less suppressed as it is in Batjan (*X. e. umbrinus* Jord. 1898), transverse band thinner than in most specimens of *umbrinus* and reaching as in that subspecies half-way to lateral margin, above shoulder from basal margin half-way to transverse band a distinct uninterrupted line, no submarginal white line in apical area. Segment X of antenna longer than IX. Length 10–12 mm.

Xenocerus equestris metrius subsp. n.

Palawan: i.1898 (*W. Doherty*), one female.

Similar to *X. e. toliensis* Jord. 1898, from North Celebes, but pronotum very feebly punctate and bearing a distinct thin dorso-lateral white vitta about one-third as broad as the median one. Markings of elytra as in *toliensis*. Length 15 mm.

Xenocerus acosmetus Jord. 1913 from Palawan is the same as *X. discrepans* Jord. 1895 from Borneo.

B. Barbicornis Group.

Xenocerus cratus sp. n.

Philippine Islands, without precise locality, one female.

Near *X. molitor* Jord. 1895, from Luzon; dark markings of elytra larger and most of the punctate striae in these patches creamy-white. Head and rostrum creamy-white, with indication of a black median stripe on rostrum. On pronotum a large black spot each side of middle, 2 mm. broad and nearly 3 mm. long, pointed anteriorly, rounded posteriorly and on outer side, interspace between the two spots at narrowest point not quite 1 mm., above anterior end of lateral carina a minute black spot, a slightly larger one at angle of carina and a round dot of about the same size at base half-way between middle and side. On elytra a black humeral spot pointed in front, about 2 mm. long, behind shoulder an anteriorly open half-ring, on subbasal swelling a patch rounded outwardly and nearly straight and diffuse on sutural side, longer than broad, on suture between the ends of the pair of subbasal patches a nearly square black one, shorter than its distance from scutellum, before middle an irregular transverse band from sutural interspace to incrassate lateral margin, black, 2 mm. broad dorsally, traversed by the creamy-white lines of punctures, on punctate line V a long tooth projecting forward to level of posterior margin of post-humeral half-ring and a shorter tooth on posterior side in interspace V, the marginal streak of this band entirely black and anteriorly shortened, in middle of band between punctate lines IV and VI a creamy-white cloud, at the beginning of apical declivity another transverse band, consisting of alternate black and creamy-grey lines, dorsal ones nearly 3 mm. long, submarginal ones not quite 2 mm., sutural interspace between them creamy-grey, anteriorly and laterally with a black longitudinal dash which projects forward, around apical angle of suture a star of five short dashes, one on suture and two on each elytrum. Pygidium creamy-white, with narrow lateral black stripe and broader median one, both abbreviated. Underside as in *X. molitor*, but episternum of metathorax with a longer black streak and close to it another on metasternum; external abdominal segments III and IV with a transverse lateral basal spot widening ventrally and extending nearly half-way to middle line (partly due to abrasion). Segment II of tarsi entirely black above like III. Length 20 mm.

C. Variabilis Group.

Xenocerus timius sp. n.

Siam (*Mouhot*) coll. Fry ex coll. W. W. Saunders and Cambodia ex coll. Bowring, two females.

In colouring resembling some species of the Saperdoides Group, but segments IV to VI of antenna not long-hairy. Upperside black, with creamy-buff markings: a stripe from occiput along eye to end of rostrum separated on frons and occiput by a black stripe of the same width from a triangular creamy median stripe which is posteriorly more than twice as broad as the lateral one. Antenna reaching to near middle of elytra, black, extreme bases of IV and V with a trace of white pubescence, VII and VIII entirely white, XI longer than IX and X together. Pronotum with median vitta which, in dorsal aspect, is anteriorly as broad and at carina twice as broad as black lateral area, in which there are some minute dots as remnants of a dorso-lateral vitta. The broad stripe continued on elytra to three-fourths, widened at basal margin to shoulder and behind subbasal swelling to interspace V, the black subbasal spot being isolated (type, *Mouhot* specimen) or more or less joined to the lateral black area; dorsally behind shoulder a small spot connected with creamy area or minute and isolated, half-way between shoulder and middle a short line in interspace VIII, in middle of elytra the sutural vitta constricted, its outer margin situated here inward of

punctate line III in type and on line II in paratype, behind this constriction or sinus a sideward dilatation to punctate line IX, this transverse band broad on suture and narrowing to ½ mm. at side, its posterior margin somewhat rounded across suture; from band to apex of suture a thin line and before apical margin an isolated short oblique line; no black markings in creamy-buff sutural area. On pygidium a creamy-buff stripe each side, the two united distally. Underside cream-colour, without black spots on abdomen; on prosternum the black area of upperside extends below the lateral carina and is sharply defined, the part below carina being posteriorly about as broad as the middle of the fore femur and anteriorly somewhat narrower. Legs white, pubescence less dense than on body, tips of tibiae and of tarsal segments and entire segment III black. Length (head and pygidium excluded) 14 and 15 mm.

Xenocerus eichhorni sp. n.

New Britain: Talasea, iii.–iv.1925 (*A. F. Eichhorn*), one male.

Resembles in colouring *X. lateralis* Jord. 1894, from the Moluccas; scent-organ on segment V of the antenna entirely worn away. Black; head and rostrum with hardly a trace of the usual white stripes. Antenna about twice as long as pronotum and elytra together, segments II to VII granulate on outside, IV longer than II, VI one-fifth longer than V, IX very little shorter than X and XI together, last three segments as narrow as in *X. lateralis*. Median vitta of pronotum complete, 0·5 mm. broad, lateral vitta represented by a thin line which is only marked from behind middle to base and interrupted before basal margin. Scutellum white. Markings of elytra much reduced, white: no sutural vitta, above shoulder a very short line, less than 2 mm. long, slightly oblique, behind subbasal swelling a round dot in interstices III and IV, behind middle a transverse band, about 1·5 mm. broad at suture, gradually narrowing sideward, extending to punctate line VI, between it and side-margin a dot or thin line, before apical margin a small dash parallel with margin. Pygidium with vestige of a white lateral border. Underside almost entirely black, with scant traces of white markings apart from a conspicuous elliptical spot in the basal lateral depression of the prosternum and the white episternum of the mesothorax. Femora with thin white pubescence, the white pubescence a little denser in basal half of tarsal segments I and IV and at extreme base of II. Length 14 mm.

Xenocerus perplexus syndetus subsp. n.

Eastern New Guinea: Sattelberg and Simbang, one male, three females, and two males, one female from "N. Guinea."

Buff sutural vitta posteriorly broader than in *X. p. perplexus* Jord. 1895, from Aru and the Fly R. in New Guinea, the dorso-lateral line widened behind the subbasal swelling and joining the sutural vitta, isolating the brown subbasal patch, from this buff ring extends backwards a stripe in interspace IV reaching more or less half-way to transverse band (in one of the males this buff line is longer and joins the sutural vitta in front of transverse band, an inverted **8** being formed). Length 11–17 mm.

D. Anthriboides Group.

Xenocerus striatus cultus subsp. n.

Philippines: Leite, viii.1896 (*J. Whitehead*), a pair.

X. striatus Jord. 1894 was described from the "Philippines"; the more precise locality of that first-described subspecies is Mindanao, whence we have a small series.

The new subspecies is distinguished by the oblique humeral line being continued to transverse band, which it joins close to lateral margin of elytrum and thence continues as a submarginal line to suture. The buffish punctate stripes which are conspicuous in Mindanao specimens are absent from the male of *cultus* and vestigial in the female. Length 10 and 14 mm.

Xenocerus striatus detersus subsp. n.

Philippines: Samar, vi.–vii.1896 (*J. Whitehead*), a pair.

Upperside thinly shaded with grey; no buffish lines in the punctate stripes of elytra, no line from transverse band backward along margin. Length 11 and 12 mm.

Xenocerus striatus purus subsp. n.

Philippines: Aroroy, Masbate, viii.–ix.1917 (*G. Boetcher*), one male, two females.

Upperside black, without traces of the buffish lines on the rows of punctures of the elytra. Dorso-lateral vitta of pronotum thinner than in the three other subspecies, about half as broad as the space between it and the lateral carina, median vitta quite thin as usual in this species, interrupted in one female. Shoulder line of elytra not extending half-way to transverse band, interrupted, consisting in male (type) and one female of an oblique stripe above shoulder and a shorter and thinner submarginal line behind shoulder, in second female the humeral part broken up into a very short basal line and a dot; point of division of the sutural vitta forming the transverse band farther back than in the other subspecies, the angle formed on the suture by the two branches much less acute. Length 10 and 14 mm.

Xenocerus dohertyi megistus subsp. n.

Waigeu (*A. R. Wallace*), coll. Fry ex coll. W. W. Saunders, one female.

Nearest in pattern to *X. d. mortiensis* Jord. 1903, from the Northern Moluccas. Dorso-lateral white vitta broader, united behind middle with the white underside, the black stripe between it and the underside being interrupted and at base very narrow. Basal margin of elytra conspicuously white from suture to shoulder, with a short backward spur above shoulder; sutural vitta continuous with white basal border, uninterrupted, no white spot or line neither dorsally or laterally between base and transverse band, but from the band itself extends half-way to shoulder a white line situated at the extreme edge of the elytra, below shoulder a very thin marginal line; no markings between transverse band and apex of elytra.

Xenocerus corae ypsilon subsp. n.

Dutch New Guinea: Waigeu, Mt. Nok, 2500 ft., v.1938 (*Miss L. E. Cheesman*), two females.

Basal margin of elytra bordered with white from scutellum to above shoulder, humeral spot separate from this border by a small interspace or joined to it, continuous with dorsal line of interstice V, a spur branching off behind subbasal swelling towards suture, which it does not quite reach, the dorsal line short, the marking thus formed resembling the inverted letter Y, the angle between the two top arms of the letter obtuse; transverse band neither separate from sutural vitta nor constricted, being of even width. Length 12 and 14 mm.

Xenocerus corae austrinus subsp. n.

South-east New Guinea: Moroka, 3500 ft., x.1895 and Mailu, vii.1895 (*Anthony*), nine pairs.

Basal margin of elytra not bordered with white, the humeral spot isolated, being separated from the dorsal line of interstice V, sutural vitta narrow close to scutellum, transverse band thinner than in *X. c. corae*, of even width, not constricted nor separated from sutural vitta except in one female, in which the isolated remainder of the band is very thin. Length 8·5–16 mm.

Xenocerus corae singularis subsp. n.

New Guinea : Fly R. (*D'Albertis*), three pairs.

Whereas in the long series of *X. c. corae* Gestro 1875 which we have from Aru and various places in Dutch New Guinea the basal half of the elytrum bears two white lines parallel with the white sutural vitta, one lateral, the other dorsal, the six specimens from the Fly R. are devoid of the dorsal line, the transverse band is either separated from the sutural vitta or dorsally strongly constricted, as it often is in *X. c. corae*, the isolated spot representing the band resembling an inverted comma. Length 9–15 mm.

E. Saperdoides Group.

Xenocerus phaleratus sp. n.

Cambodia, one male (type), one female; Siam, three males.

Near *X. khasianus dives* Jord. 1923, from Annam. Upperside black, markings creamy-buff (*i.e.* less pale grey than in the two known subsp. of *X. khasianus* Jord. 1895). Median vitta of pronotum 2½ to 3 mm. broad behind middle, narrowed to apex, less to base, lateral vitta represented by three small spots, of which the subapical and basal ones are usually minute or even missing. Sutural creamy-buff area of elytra extending from base to apex, three times constricted, at basal fourth, at middle and before apex, the anterior sinus usually reaching the black spot on subbasal swelling, in one specimen the black spot remaining isolated, the second sinus larger than in *X. kh. dives*, extending to interspace II, the third sinus at beginning of apical declivity penetrating to punctate line I or, in the "Siam" specimens, reaching the suture, cutting off the apical creamy-buff patch; in the black lateral area four or five spots, smaller than in *X. kh. dives*. Underside creamy-white; prosternum with sharply defined black lateral stripe which is not separated from the black dorsal area; abdomen with a row of four black spots that touch the margin of the elytrum. On outside of femora a black spot, sometimes divided; apices of tibiae and of tarsal segments black, as is the entire upperside of segment III. Length 12–19 mm.

Hybosternus gen. n.

Basal half of intercoxal process of mesosternum vertical or nearly, apical half inclining backward, the process therefore with a transverse obtuse ridge, a longitudinal median depression deepest at the elbowed point of the surface, dividing the ridge into a right and left hump. Groove along anterior margin of metasternum deeper in centre than is usual in *Xenocerus*. Segment III of male antenna short, IX longer than X, very long in large male, X remaining short.

Genotype : *Xenocerus fruhstorferi* Jord. 1894, *Novit. Zool.* **1** : 645 (Java). Here also belong the species described as *X. decemguttatus* Jord. 1895 (Sumatra, Java), *X. scutellaris* Jord. 1897 (Sumatra), *X. tephrus* Jord. 1913 (Malay Pen.) and *X. mesosternalis* Jord. 1894 (Ceylon). The peculiarity of the mesosternal process is slightly indicated in some species of the Saperdoides Group of *Xenocerus*.

Eothaumas gen. n.

Upperside with conspicuous median depression from anterior margin of pronotum to apical declivity of elytra; transverse carina of pronotum interrupted in middle; third interspace of elytrum subcarinate; pygidium broader than long in both sexes; intercoxal process of mesosternum subbituberculate; groove along anterior margin of metasternum not continued across median process, this process medianly raised into a small ridge. Antenna of large male 2½ times as long as pronotum plus elytra, segments II and III rough with long hairs on all sides, pubescence short on IV to XI, III a little longer than hind tarsal segment I, IX more than twice as long as X and XI together. In female antenna reaching beyond middle of elytra, II to VI rough with long hairs all round, pubescence of VII to XI short, VI longer than VII plus VIII, IX and X each less than twice as long as broad, XI about as long as the two together.

Genotype: *Xenocerus bennigseni* Jord. 1906, *Novit. Zool.* **13**: 410 (Eastern New Guinea). The only species. There are two males and three females in the British Museum (N.H.).

ON *TREPHOGNATHUS*: A NEW GENUS OF AFRICAN BARIDINAE (COL. CURC.)

By Sir Guy A. K. Marshall, K.C.M.G., F.R.S.

Casey (1922, *Mem. on Col.* **10**) appears to have been the first to point out the striking differences that occur in the form of the mandibles in the Baridinae, but in only one genus (*Nedestes* Casey) does he indicate that the jaws work in a subvertical plane, as in *Balaninus*. An examination of the limited number of neotropical Barids available at the moment suggests, however, that this curious twisting of the jaws, so that what is normally the inner biting edge is turned downwards, occurs much more frequently than has been supposed. It has already been detected in the following neotropical genera: *Cylindrocerus* Schönh., *Glyptogeraeus* Casey, *Microstrates* Lac., *Myelantia* Casey, and in some species of *Geraeus* Pasc. and *Tonesia* Casey, and doubtless will be found in others.

In all these cases it is notable that the rostrum is exceptionally slender and usually very long and rather strongly curved. The mandibular condyles, instead of being placed as usual on each side of the oral opening, have migrated to the lower surface of the rostrum; thus the jaws work independently, side by side, in the vertical plane, scraping instead of biting, and this is probably a more efficient mechanism for boring deeply into soft plant tissues.

A survey of all the Oriental genera of Barids has revealed only two genera having mandibles of this type, namely, *Parallelodemas* Faust and *Mimophilus* Faust. In the latter the jaws meet in the middle line, but in the former they are widely separated and cannot meet, and in both cases they work obliquely downwards and backwards, and not in the vertical plane. Although in both genera the rostrum is very long for a Barid, it is much stouter than in any of the South American genera mentioned above.

In the Palaearctic Region this kind of mandibular structure does not appear to occur. Among the African Barids also no described genus has been found to exhibit this displacement of the jaws, but it has been detected in a new genus comprising four new species, described below. This case is of particular interest because the turning of the mandibles has taken place in an entirely different manner; that is to say, instead of the cutting edge of the jaw being turned downwards, it is turned upwards, so that where teeth are present they project dorsally, while the ventral edge of the jaw is smooth and convex. It would seem that with their vertical movement the jaws would be used for digging rather than for scraping. In this case the structure of the rostrum is quite similar in the two sexes, so that the unique condition of the mandibles is probably related to feeding habits rather than to oviposition.

Trephognathus gen. n.

Head not separated from the rostrum by the usual deep incision, at most with a very shallow transverse impression. *Rostrum* as long as, to one-half longer than, the pronotum, subcylindrical, not or but slightly widened at the apex but there somewhat deeper than near the base; mandibles rotated, so that what is normally the inner dentate biting edge has become dorsal in position, and the mandibular condyles are situated on the lower surface of the rostrum instead of at the sides, so that the jaws move in the vertical plane.

Antennae inserted at or near the middle of the rostrum; scape not quite reaching the eye, slender, gradually clavate, bare; funicle with joint 1 as long as 2–4, 3–7 transverse, 7 annexed to the club. *Elytra* either not wider than the prothorax (typical) or distinctly wider at the shoulders, jointly rounded at apex, without any posterior calli, interval 9 not costate apically, stria 8 free at apex or uniting with 7. *Wings* functional. *Legs* with the femora gradually clavate, not dentate; tibiae not widened at apex, without a mucro; tarsal claws small, free. *Sternum* with a deep transverse sulcus on the anterior part of the prosternum, the hind margin of which is only slightly produced in the middle but not sinuate there or tuberculate; mesosternum shallowly depressed. *Abdomen* fully exposed dorsally in both sexes and broadly visible beneath in ♂ only; ventrite 2 shorter than, or at most as long as, 3 + 4.

Genotype: *Trephognathus inclusus* sp. n.

Key to the species of Trephognathus.

1(4). Elytra not broader than the prothorax, with a large common subquadrate bare area on the basal half; pronotum with a spot of white scales in all four angles; funicle with joint 2 longer than broad.

2(3). Elytra with stria 7 ending behind the shoulder in an area covered with close irregular punctures, the bare discal area extending to stria 5, the intervals shiny, mostly with a regular row of small punctures; length 3 mm. . . . . *inclusus* sp. n.

3(2). Elytra with stria 7 nearly reaching the base above the shoulder, the area behind the shoulder not irregularly punctate, the bare discal area reaching only stria 4, the intervals finely shagreened, with larger irregular punctures; length 4 mm. . . . . *discalis* sp. n.

4(1). Elytra distinctly broader at the shoulders than the prothorax, with a common X-shaped marking of scales; pronotum without white spots in the anterior angles; funicle with joint 2 as long as broad.

5(6). Mandibles very narrow, with the basal dorsal tooth absent or rudimentary; sutural stripe of scales on the elytra covering intervals 1 and 2 . . . . . *apii* sp. n.

6(5). Mandibles broader, with a distinct basal tooth dorsally; sutural stripe of scales covering only interval 1 . . . . . *cruciger* sp. n.

The types of all the species are in the British Museum (Nat. Hist.).

Trephognathus inclusus sp. n.

♂♀. Derm red-brown, the head, and sometimes the pronotum, black; pronotum bare, with a spot formed of broad white scales in all four angles and a few white scales in the middle of the base; elytra with a rather wide basal band of broad yellow scales from interval 2 to 7, extending backwards as a stripe composed of a single row of white scales on intervals 6–8, and curving obliquely inwards to interval 4 or 3, and a small patch of white scales at the apex; underside with dense white scales on the side-pieces of the meso- and metasternum, and sparser scales elsewhere.

Head bare, with small sparse punctures, not separated from the rostrum by an impressed line. *Rostrum* about as long as the pronotum, strongly and regularly curved, narrowing for a short distance from the base, parallel-sided to beyond middle, then very gradually widening to apex, with four rows of small close punctures which become sparse and less regular beyond the antennae, and a row of coarser punctures adjoining the scrobe; mandibles with a strong basal tooth dorsally. *Antennae* inserted beyond the middle of the rostrum in both sexes; funicle not widening distally, joint 2 longer than broad. *Prothorax* very nearly as long as broad, gently rounded laterally, widest slightly behind the middle,

not constricted at apex, the base very shallowly bisinuate, the dorsal apical margin sinuate in the middle; dorsum gently convex longitudinally with widely separated small punctures in ♀, much closer in ♂, and an irregular smooth median line. *Scutellum* small, subquadrate, bare, impunctate, with a median impression. *Elytra* elongate, only as wide at the shoulders as the prothorax, very gradually narrowing posteriorly from the shoulders, without discal impressions; the deep narrow striae containing small shallow punctures, striae 7 and 8 ceasing behind the shoulders in an area of close irregular punctures; the broad flat intervals in the bare discal area shiny and with a single row of fairly regular small punctures. *Legs* red-brown, with separated oblong white scales.

Length 3·0–3·2 mm., breadth 1·0–1·1 mm.

South Africa: Cape Province, Aliwal North, 4350 ft., 1 ♂, 1 ♀, i.1923 (*R. E. Turner*); Orange Free State, Harrismith, 1 ♀, ii.1927 (*R.E.T.*—type).

Trephognathus discalis sp. n.

♀. Closely allied to *T. inclusus* sp. n., the description of which applies except in the following particulars:—

The four spots on the pronotum larger and with isolated scales between the spots on the same side, the spot in the middle of the base also much larger; the backward extension of the basal band on the elytra covering intervals 5–8.

Antennae inserted at the middle of the rostrum in ♀. *Prothorax* much more strongly rounded laterally, the dorsal punctures larger and more dense. *Elytra* with the bare areas finely shagreened, stria 7 extending nearly to the base above the shoulder; the dorsal intervals with larger irregular punctures, the lateral ones with a minute, often transverse granule immediately in front of each scale.

Length 4 mm., breadth 1·4 mm.

S. Rhodesia: Salisbury, 1 ♀, ii.1914 (*Father J. O'Neil*).

Trephognathus apii sp. n.

♂♀. Derm red-brown; pronotum with a large spot of broad white scales in the basal angles; elytra with a wide basal band of broad white or yellow scales extending laterally as far as stria 6 and continued backwards as a sutural stripe on intervals 1 and 2 to beyond the middle, where it expands outwards as far as interval 5, the whole forming a common X-shaped marking; underside with dense broad white scales on the middle of the prosternum, the side-pieces of the meso- and metasternum, and on the lateral areas of the metasternum, the rest of the sternum and venter with more sparse narrower white scales.

Head separated from the rostrum by a very shallow transverse impression and with sparse small punctures. *Rostrum* half as long again as the pronotum, narrowing for a very short distance from the base, then parallel-sided to the apex, which is somewhat compressed, especially in ♀, with four rows of close small punctures that become more sparse and less regular beyond the antennae, and a punctate sulcus adjoining the scrobes; mandibles more slender than in all the other species and with the basal dorsal tooth rudimentary or obsolete. *Antennae* inserted at the middle of the rostrum; funicle rather stout, widening distally, joint 2 as long as broad. *Prothorax* a little broader than long, moderately rounded laterally, widest slightly behind the middle, shallowly constricted at the apex, the dorsal apical margin truncate, the base feebly bisinuate; dorsum almost flat longitudinally, with rather large separated punctures and a smooth median line. *Elytra* distinctly wider at the obliquely rounded shoulders than the prothorax, narrowing very slightly from there to the middle and then more rapidly, without discal impressions; the narrow deep striae with indistinct distant punctures, striae 7 and 8 ceasing behind the shoulders; the flat intervals finely

shagreened, with a single regular row of large, very shallow punctures, without granules. *Legs* with the scales on the hind femora broad and almost contiguous, those on the other legs narrow and sparser; tarsi with joint 3 somewhat narrower than in the preceding species, being not or only slightly wider than 2.

Length 2·5–3·0 mm., breadth 1·1–1·4 mm.

SENEGAL : Bambey, 1 ♂, 2 ♀, iv.1944 (*J. Risbec*).
Recorded as attacking celery.

Trephognathus cruciger sp. n.

♂♀. Very closely allied to *T. apii* sp. n., the description of which applies to it, except in the following characters :—

Derm black to piceous; the sutural stripe of scales on the elytra confined to interval 1.

Head with the impression separating it from the rostrum almost obsolete. *Rostrum* with the mandibles broader and with a strong basal tooth dorsally. *Antennae* with the funicle more slender, the joints being much less transverse. *Prothorax* rather more strongly rounded at the sides, the dorsum more convex longitudinally, the punctures much closer, some of them being even longitudinally subconfluent. *Elytra* proportionately broader owing to the posterior declivity being steeper; the striae deeper and more strongly punctate, the intervals somewhat narrower and with much deeper punctures.

Length 2·7–2·8 mm., breadth 1·0–1·2 mm.

S. RHODESIA : Marandella's, 1 ♂, xi.1897 (*G. A. K. Marshall*); Salisbury, 1 ♀, xi.1913 (*Father J. O'Neil*—type).

It is to be regretted that in the *Coleopterorum Catalogus* the name BARINAE has been applied to this subfamily. Some early authors used for it the tribal name Baridiides, based on Schönherr's inadmissible name *Baridius*. Schönherr wisely suggested that all Curculionid genera should be formed with a masculine ending, but unfortunately he also changed all the earlier feminine names; thus he altered *Baris* into *Baridius*, *Magdalis* into *Magdalinus*, *Sitona* into *Sitones*, *Hypera* into *Phytonomus*, etc. *Baris* (from βᾶρις, βᾶριδος, a boat) was restored in the Munich Catalogue (1871), and Pascoe was the first author to treat the group as a subfamily under the correctly formed name BARIDINAE (1873, *J. Linn. Soc. Lond., Zool.*, **11** : 487); there seems to be no valid reason why the name should have been changed.

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„ June 6
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„ November 7
„ December 5

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